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THE ROLE OF QUALITY ADOPTNION IN GROWTH AND MANAGEMENT OF SMALL & MEDIUM ENTERPRISES IN KENYA

Dr. Kenneth Lawrence Wanjau

Rosylene W. Gakure

Lecturer, Jomo Kenyatta University of Agriculture and Technology, Nairobi, Kenya

Peterson Obara Magutu

Lecturer, University of Nairobi, Nairobi, Kenya

James Kahiri

Lecturer, Kenyatta University, Nairobi, Kenya

Abstract

In today's business environment, small and medium enterprises (SMEs) cannot afford to ignore the strategic implications of quality for its competitive position. Research shows that most SMEs lose between 5%-15% of sales revenue as a result of the lack of attention to quality. Of the limited research available, it appears that SMEs has been very slow to implement formal quality models, and where they have, the outcomes are inconclusive. The purpose of this study was to investigate the role of quality in growth of SMEs in Kenya. The study focused on manufacturing SMEs that are based in Nairobi and its environs. The study adopted an exploratory approach using a descriptive survey. Stratified random sampling was used and each stratum represented a sub-sector. The data collection instruments were issued to all the 123 firms identified. The response rate was 100%. Statistical analyses were conducted using statistical package for social scientists (SPSS) to calculate descriptive statistics, reliability analysis, factor analysis, t-test, F-test and regression. Results showed that; majority (72%) of the manufacturing SMEs had adopted quality or are implementing quality initiatives; forty five (45%) percent of the SMEs adopting quality are in the agro-based sub sector. Overall, the SMEs level of quality initiative's implementation is below average (mean = 3.49). The results are indicative of the reluctance of SMEs to adopt quality initiatives. The overall results indicated that entrepreneurial management (EM), marketing orientation (MO) and capacity enhancement of employees had a significant linear

relationship with quality. The results support the notion that SMEs committed to the adoption of quality do obtain results. The study recommends that SMEs must know what quality management is and what comprises quality management if they are to implement them in their firms.

Keywords: Quality Adoption, Growth Small & Medium Enterprises (SMEs), Kenya

Introduction

The globalization of the marketplace and the rapid improvement in high quality products and services has brought about high levels of market pressure across the world. In order to become efficient and competitive in today's business environment, the majority of firms is being encouraged not only to change their old operational habits, but also to develop better ways to ensure that customers are satisfied with the quality of products/services. As many firms have discovered that the key to customer satisfaction and competitive success lies in emphasizing and achieving product and service quality as a strategic weapon in performing business (Pulat, 1994; Krasachol & Guh, 2001; Warnack, 2003; Reed, Lemak, & Mero, 1999). It is clear that quality has emerged as a strategic competitive tool for organizational success (Yong & Wilkinson, 2002). In today's business environment, organizations cannot afford to ignore the strategic implications of quality for its competitive position. In the light of this, it is vital for firms to develop or adopt an effective Quality Management System (QMS) very often associated with quality initiatives such as ISO 9000 series (Rohitratana & Boon-Itt, 2001).

Quality Management System is referred to as a business that can be applied to all business sectors and sizes of companies. If you think of a business as a set of processes it identifies the key process areas that need to be addressed to ensure quality is managed effectively. Moreover, quality management systems are designed to provide the support and mechanisms for the effective accomplishment of quality- related activities in organizations (Klefsjo, Bergquist & Edgerman, 2006). In a broader sense, Goetsh and Davies (2005) indicated that the quality management system "consists of all the organization's policies, procedures, plans, resources, processes, and delineation of responsibility and authority, all deliberately aimed at achieving product or service quality levels consistent with customer satisfaction and the organization's objectives. When these policies, procedures, plans, ex ceetra are taken together, they define how the firm works, and how quality is managed."

The contribution of small and medium enterprises (SMEs) to the national economy is well recognized and documented in various studies. Some of the studies include (ILO, 1996;

Levitsky, 1993; Elkan, 1989; Sessional Paper No. 2 of 1992) and Kenya National Development Plans (2001-2005) and Sessional Paper No.2 of 2005). Billetoft (1993) noted that people have a much higher opinion of SMEs than of large firms, partially because an SME is characterized by individual freedom, risk taking, initiative, thrift, frugality and hard work. In this regard, a number of studies in the United States show that the contributions of SMEs which survive (Birley, 1987) and particularly those which grow (Reynolds, 1987) play a much more important role in national development.

Despite the above cited benefits, SMEs have been somewhat slow in adopting quality initiatives, not only due to excessive managerial involvement in day-to-day entrepreneurial activities that typically focus on sales strategies and market growth but also because they are less comfortable with the formal approaches that have been advocated as part of ISO 9000 series registration, and introduction of quality initiatives like TQM (Yusof & Aspinwall, 1999; McTeer & Dale, 1994). Despite its conceptual rigor, the role of quality in affecting organizational growth or performance (whether facilitative or causative) particularly within the context of small businesses requires research attention (Tatoglu & Zaim, 2006).

Problem of Research

Research findings of Adam (1994) and reports in the business press suggest that quality management implementation does not in and of itself guarantee high performance (Bleakley, 1993; Fuchsberg, 1992a, b, 1993; Jacob, 1993; Mathews, 1993; Mathews & Kate 1992; Naj, 1993). Why quality initiatives like TQM implementation - performance relationship have remained so inconsistent has been largely unexplained (Forker, 1997). Through many years of relentless debate, this inconsistency has led several authors to conclude that, instead of viewing this relationship as a direct one, it ought to be mediated by other constructs (Macaes, Farhangmehr & Pinho, 2007).

Research shows that most SMEs lose between 5%-15% of sales revenue as a result of the lack of attention to quality (McMahon, 2001). This suggests that formal quality management systems are important tools contributing to the growth and development of SMEs. In addition, buyers in domestic and international markets are demanding that their suppliers operate quality management systems as a means of ensuing strong commitment to quality, productivity, cost competitiveness, and customer satisfaction. With the weakening of trade-barriers, the opening of markets to multinational competitors and the spread of international quality standards such as ISO 9000 to developing countries, SMEs are expected to achieve competitive advantage through the provision of quality products and services (Agus, 2000).

This study aimed to address the gap in research on the relationship between quality initiatives and SME growth in Kenya. In order to bridge the gap and provide SMEs with practical assistance in dealing with this issue, this research used a sample of manufacturing SMEs within Kenya to examine whether adoption of quality inevitably contribute towards growth of the firm. The perception of process improvement consulting on the manufacturing sector, the demand for process improvement services between Kenyan firms is very low and many are not aware of the potential for improved competitiveness (GoK, 2007).

This paper is also a follow up of previous research by Lobo and Jones (2002), which examines empirically the possible association between the adoption of certain quality initiatives (namely TQM, quality assurance and quality benchmarking) and the rate of business growth in Australian manufacturing SMEs. The main objective of this paper was to investigate the role of quality in growth of SMEs in Kenya.

Research Focus

The paper examined the role of quality in growth of small and medium enterprises in Kenya. In this section, the paper explores the role of quality in SMEs as articulated by various scholars and the research gaps they identified. A conceptual framework has also been developed. Firms seeking to remain competitive in today's global markets must integrate quality into all aspects of their organization. Successful firms focus on customers and their needs, requirements, and expectations. The voice of the customer serves as a significant source of information for making improvements to a firm's products and services (Summers, 2006).

In common with other managerial ideas and approaches, quality management has taken time to move from its original home in large industrial manufacturing to the small and medium size-manufacturing sector. While the majority of developments up to the 1980s were focused on the subject of managing quality in the manufacturing industry (Morris, 1991), quality ideas gradually moved out of that domain into the service, health care, and public sectors and eventually merged with mainstream organizational management thinking (Boon & Monder, 1998; Selegna & Fazel, 2000). The widespread adoption of quality systems was driven not only by the need for improvement, as in the manufacturing industry, but also by personal sponsorship, ideology, and championship (Dale, Boarden & Lascelles, 1994).

Since developing countries are breaking the traditional trade barriers and opening their markets to international competitors, the demand for quality can no longer be the prerogative of the developed world. Today developing countries are beginning to see dramatic improvements in quality (Temtime & Solomon, 2002). The only way a developing

nation can increase its trade activities and develop sustainable basis is to improve the quality of its products and services (Djerdjour, 2000). Both large and small, production and service, and public and private organizations have made commitments to quality initiatives like total quality management (TQM) by making it fundamental to their growth (Oakland, 2004). Increasing product quality results in higher profits because costs are decreased and productivity and market share are improved (Ryan, Deane & Ellington, 2001; Gupta, 2004). Firms can adopt several strategies aimed at quality improvement such as TQM, ISO 9000 standards and Six Sigma (Cole, 2002).

The relevance of formal quality management initiatives such as Total Quality Management (TQM), quality certification, and Quality Awards to small and medium enterprises (SMEs) has been a highly contentious issue in the quality and SME literatures over the past decade. Besides the ubiquitous criticisms of these initiatives based on the prohibitive costs of implementation, increased bureaucracy and complexity, and managerial confusion over the different methods, there is little evidence to support their pecuniary rewards to SMEs (Husband & Mandal, 1999). Internationally, empirical research into the rate and success of implementation of these initiatives in SMEs is largely considered to be inadequate Literature in this area is more often conceptual than empirical, and where empirical, it sometimes suffers from methodological limitations (such as unclear or inconsistent definitions of what constitutes an SME) (Ramsey 1998; Kuratko, Goodale & Hornsby, 2001). Of the limited research available, it appears that SMEs has been very slow to implement formal quality models, and where they have, the outcomes are inconclusive (Husband & Mandal, 1999). For example, Chittenden, Poutziouris and Mukhar (1998) found that only a "tiny minority" of small firms in the UK had registered for ISO 9000, but the "great majority" of these found that the benefits of doing so exceeded the costs. Reported benefits included marketing and competitive advantage, and to a lesser extent improved internal operating efficiencies. On the other hand, Terziovski, Samson and Dow (1997) surveyed over 900 manufacturing firms in Australia and New Zealand and found that "ISO 9000 certification is not shown to have a significantly positive effect on organizational performance", and that the rate of quality system adoption was lower in smaller firms than in larger ones.

The quality concept has been a popular research topic in marketing and management literature where researchers have attempted to identify key dimensions of quality initiatives and performance. Researchers have defined the concept of quality in different ways ranging from perception of value (Summers, 2006) to conformance to requirements (Deming, 1986),

fitness to use (Juran, 1979) and finally to meeting customer's expectations (Oakland, 2004). Quality is a customer determination based on the customer's actual experience with the product or service, measured against his or her requirements stated or unstated, conscious or merely sensed, technically operational or entirely subjective and always representing a moving target in a competitive market (Cole, 2002). Gupta (2004) point out the importance of quality by saying "quality is an important strategic dimension and a key competitive weapon that cannot be ignored by any corporation."

Deming (1986) considered quality and process improvement activities as the catalyst necessary to start an economic chain reaction. Improving quality leads to decreased costs, fewer mistakes, fewer delays, and better use of resources, which in turn leads to improved productivity, which enables a firm to capture more of the market, which enables the firm to stay in business, which results in providing more jobs (Summers, 2006). A study by Ahire and Gohlar (1996) found that the introduction of quality initiatives like TQM in SMEs had helped to sharpen SMEs' market focus, to become more efficient, to harness their human resources better, and to improve their competitiveness. They also concluded that adoption of quality leads to better product quality and that SMEs can implement quality initiatives like TQM as effectively as large firms. Madu and Kuei (1995) performed a comparative analysis in manufacturing firms in the United States of America and Taiwan. Their findings showed associations between the quality constructs and growth but no casual relationships were established. Furthermore, these relationships were different for four types of firms based on age and size. Even within the same firm types, there were differences among countries.

Most firms especially SMEs in developing countries suffer from: lack of employee involvement and participation in quality improvement efforts; lack of management commitment and motivation; perception of quality as an optional extra; traditional belief that quality costs money; lack of cooperation between suppliers and dealers, management and trade unions; unorganized and indifferent customers; lack of political support; and lack of established standards (Lakhe & Mahanty, 1994; Djerdjour, 2000). There is evidence (McTeer & Dale, 1994) that SMEs are more concerned with quality than their larger company counterparts, but that they do not conform as easily with the formal approaches that are often advocated as part of ISO 9000 series registration, and introduction of quality. Many SMEs simply jump on the quality bandwagon without fully understanding what quality initiatives like TQM means to them or its possible consequence (Temtime & Solomon, 2002). Firms especially, SMEs should avoid wishful thinking that quality will fix short-term problems and quickly generate business growth; quality is not a destination but a journey

requiring a long-term, unwavering commitment to the improvement of product, services and processes, a means to an end rather than end in itself (Shin, Kalinowski & El-enien, 1998).

Flynn et al. (1995) did an exploratory study about quality management practices at the plant level and concluded that there are other factors that contribute to competitive advantage and suggested that focusing solely on adapting to quality and quality improvement may not be a sufficient means for a plant to attain and sustain competitive position. Powell (1995) concluded that "firms that acquire the soft elements of quality can outperform competitors without the accompanying quality ideology". Evidence from the literature on quality failure emphasizes the neglect of the "soft" side of quality management wherein the human resource and organizational behavioral aspects of quality management are not given their deserved emphasis (Wilkinson, Redman, Snape & Marchington, 1998; Cruickshan, 2000). Although there has been much interest in understanding small firm growth, there is still not much of a common body of well-founded knowledge about the causes, effects or processes of growth (Davidsson & Wiklund, 2000). Moreover, although several determinants of firm growth have been suggested, researchers have been unable to achieve a consensus regarding the factors leading to firm growth (Weinzimmer, 2000). Most of the research work in this area fails to provide convincing evidence of the determinants of small firm growth as a basis for informing policy makers (Gibb & Davies, 1990). Attempts to build models for predicting the future growth of the firm, that is, picking winners, have not been particularly successful. Moreover, as Spilling (2001) reminds us, the status of being a growth firm may be rather temporary.

Today's successful organizations believe that they must achieve breakthrough improvements, maintain high performance by continuously improving their operations, and plot a course towards excellence and sustainability. To simultaneously achieve these challenging goals, the selection of effective quality themes remains vital. Yesterday's solutions may not deliver competitive performance. The entrepreneur's challenge is to choose the best approach for their enterprises. They must determine whether adoption of quality suits their culture, will deliver and sustain the desired results, and whether their people have the capability to handle the techniques of adoption. During Japan's 'quality revolution' in the 1950s and 1960s, there were relatively few choices in terms of quality techniques. Today, by contrast, there is a plethora of quality approaches and techniques to choose from. The evolving nature of quality, with its developing themes, overlapping approaches and techniques can make for difficult decisions. Is it the right time to adopt Six Sigma? Is it better than TQM, and indeed what is the difference? Should we try to reengineer our business

processes first? Is our ISO 9001 system helping or holding us back? These questions are increasingly significant to small and medium enterprises in such low-cost manufacturing countries as China, India, Vietnam, and Kenya. Not long ago, ISO certification was the main goal of most such enterprises. Now, many are striving to enhance their quality and productivity in order to attract strategic partners in the developed countries wishing to outsource their manufacturing capacity.

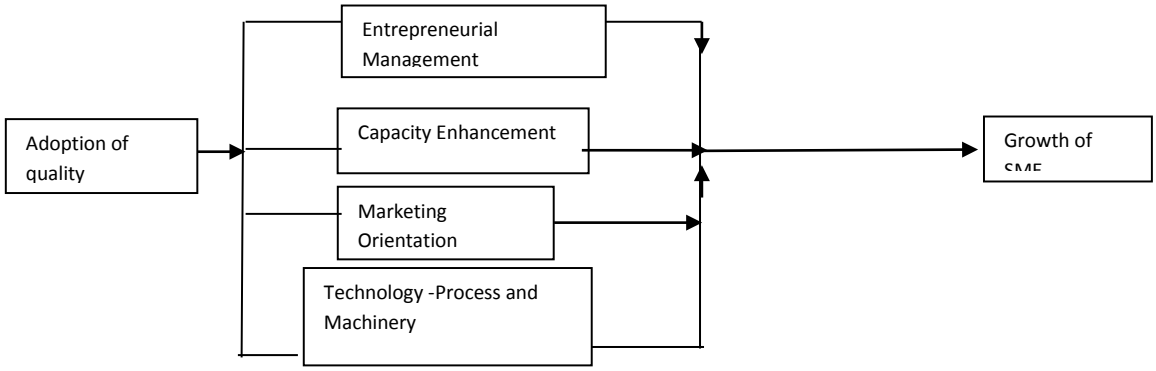
Today's leading small and medium manufacturing enterprises take a global view of their business, and compete via their supply chains, as well as through internal operational effectiveness (OE). Their expectations of supplier OE capability are high. To become their suppliers, low-cost manufacturers must demonstrate capability in reliably producing high-quality products and services at competitive cost. The literature review identified a clear gap in adoption of quality and has attempted to clarify some of the background to the choice of a quality approach, and explored the explanatory variables that would assist in the selection process. These variables include entrepreneurial management which is a form business orientation that highlights the dimensions that will affect entrepreneurial orientation development of a firm, capacity enhancement of employees which consists of training and education, participation in decision-making, suggestion systems, incentive mechanisms and work autonomy, market orientation which is perceived as a system of corporate beliefs and values pivoting around and involve (1) the creation of superior customer value at a profit while not neglecting the interest of other key stakeholders, (2) the shaping of the company's internal environment and climate so that the company can be responsive to market information and technology (Process & Machinery) in this study referred to the elements of the framework as defined by Chang (1995), viz products, processes and practices.

In a conceptual framework, descriptive categories are systematically placed in a broad structure of explicit propositions, statements of relationships between two or more empirical properties to be accepted or rejected (Parsons & Shils, 1962). It comprises of independent variables and dependent variables. An independent variable (IV) or the exploratory variable is the presumed cause of changes in the dependent variable (DV). It is caused or influenced by the dependent variable(s). Dependent variable(s) is the variable the researcher wishes to explain. It is also called criterion or predictor variable (Kothari, 2004). For simple relationships, all other variables are considered extraneous and are ignored. In actual study situations, however, such a simple one- on- one relationship needs to be conditional or revised to take other variables into account. Often one uses another type of explanatory variable of value. The propositions included within the framework summarize, provide

explanations and predictions for empirical observations. This study adopted a conceptual framework of strategic importance to identify some underlying forces behind different aspects of the key concept of quality. In particular, it investigated the significance of entrepreneurship management (namely risk taking and innovations), market orientation; capacity enhancement and technology (see figure. 2.0). According to Wolff and Pett (2006) within SME research, the issue of firm growth/ performance has taken a place of prominence as a dependent variable.

Figure 1.0 below depicts the relationship between different constructs that are of paramount importance for achieving long-term sustainable competitive advantage.

Figure 1.0 Conceptual Framework



Independent variable **Dependent Variable**

The conceptual framework posits that the adoption of quality influences growth of SMEs. However, that relationship is influenced by explanatory variables which are influenced by adoption of quality; the entrepreneurial management, capacity enhancement, market orientation, and technology, process and machinery.

Hypothesis

To examine how each of the criterion variables influence the response variable, the following null hypotheses were tested; - H_1: There is no relationship between entrepreneurial management (EM) and adoption of quality in SMEs. H_2: There is no relationship between market orientation (MO) and adoption of quality in SMEs. H_3: The capacity of employees is not related to adoption to quality in SMEs. H_4: There is no relationship between investment in technology and adoption of quality in SMEs. H_5: There is no relationship between adoption of quality and growth in SMEs. H_6: The independent factors (EM, MO, capacity of employees and investment in technology) together do not influence the adoption of quality.

Methodology of Research

General Background of Research

The study adopted an exploratory approach using a descriptive survey design, which ensured ease in understanding the insight and ideas about the problem. It aimed to investigate four objectives and testing of five hypotheses formulated from the review of the literature. According to Creswell (2003), descriptive survey designs are used in preliminary and exploratory studies, to allow researchers to gather information, summarize, present data, and interpret it for the purpose of clarification. Also according to Osman (1984), descriptive survey design involves large numbers of persons, and describes population characteristics by the selection of unbiased sample. It involves using questionnaires and sometimes interview tests, and generalizing the results of the sample to the population from which it is drawn. In this study, descriptive survey design was used to obtain information from a sample of 123 respondents and for testing hypotheses on adoption of quality by SMEs. The descriptive survey design is flexible enough to provide opportunity for considering different aspects of a problem under study (Kothari, 2004). This design was further appropriate for this study since Borg, Gall & Gall (2003) note that descriptive survey research is intended to produce statistical information about the aspects of the research issue (in this case quality) that may interest policy makers and SME entrepreneurs.

Exploration serves other purposes as well. The area of investigation is new and a researcher needs to do an exploration just to learn something about the dilemma facing the SME operator (Cooper & Schindler, 2003).

Sample of Research

The study focused on manufacturing SMEs in Nairobi and its selected environs namely Ruiru, Athi River and Limuru. This is because manufacturing SMEs in Nairobi and its environs have formal procedures or processes that are documented and registered with regulatory government bodies (Gok, 2007). According to Ministry of Industrialization 2005 database, 2,120 manufacturing SMEs are registered as formal enterprises. 1,258 manufacturing SMEs are located in Nairobi and its selected environs. This number (1,258) was further divided into sub-sectors, using International Standard Industrial Classification. The sub-sectors are agro-based, chemical and mining and final engineering and construction. According to the Ministry of Industrialization, 582 enterprises are in the agro-based sub sector, 300 enterprises are in the chemical and mining sub-sector and 354 enterprises are in the engineering and construction sub-sector all based in Nairobi and its selected environs. According to Gay (1981), ten percent of the accessible population is enough therefore the

study investigated 123 manufacturing SMEs. A list of all manufacturing SMEs in Nairobi was sourced from the Ministry of Industrialization and Kenya Association of Manufacturers.

The type of manufacturing industry was used as a parameter for stratification to select the SMEs to be included in each stratum. With ideal stratification, each stratum is homogeneous internally and heterogeneous with other strata (Cooper & Schindler, 2003). This criterion required SMEs only involved in manufacturing products and classified using International Standard Industrial Classification, which was used as a stratification factor together with the number of employees.

Using proportional allocation, 58 agro-based, 30 chemicals and mining and 35 engineering and construction enterprises were visited. Stratification is also called for when different methods of data collection are applied in different parts of the population. The ideal stratification was based on the primary variable under study, that is, adoption of quality (Cooper & Schindler, 2003).

Instrument and Procedures

Whereas Powell (1995) used the following 12 constructs with their 47 associated variables, executive commitment, adopting the quality philosophy, customer focused, supplier focused, benchmarking, training, open organization, employee empowerment, zero defects, measurement, process and flexible manufacturing, this research used 10 constructs, by refining the Instrument. The Powell instrument (1995) as used in this study were; 1.Executive Commitment, 2. Adopting Quality Philosophy, 3. Customers focus, 4. Supplier Focus, 5. Benchmarking, 6. Training, 7. Open Organization, 8. Employee Empowerment, 9 Zero Defects 10. Measurement.

Model refinement was conducted utilizing the following methods namely; Scale Reduction, Dropping Items, Inclusion of New Items and Revising Existing Items. The following subsection provides refinement made to the Powell Instrument and draws on literature review to provide support where other studies have used similar methods.

A self-administered questionnaire, face-to-face standardized interview schedules, and observation were the three principal tools of data collection. Primary data were collected using these three tools. An observation checklist provided a reliable and valid account of what was happening in various SMEs. Target questions addressed the investigative questions of a specific study. The target questions in this study were structured (presented the respondents with a fixed set of choices, often called closed questions) or unstructured (Cooper & Schindler, 2003). The questionnaire was structured to according to the specific

objectives that are entrepreneurial management, technology, market orientation and capacity building.

Questionnaires are popular within the various studies on quality initiatives like ISO 9000: 2000 due to the fact that they are stable, consistent and uniform statistical measure, provide less opportunity for bias or error than interviews, provide greater assurance of anonymity and can be completed at the participants' convenience (Kumar, 2000). Questionnaires were chosen for this study, partly because of the popularity of this method in quality management research (Bavagnoli & Perona, 2000). Questionnaires have been used to study quality management techniques in different countries or regions, as in the case of Taiwan (Chang & Lu, 1995). Further, quality management questionnaires are utilized to also focus on a specific firm's sector, as in the present study.

The study also used an interview schedule and an observation checklist which was analogous to the questionnaire. Personal interview method and structured observation were used (Kothari, 2004).

In addition, secondary data were collected from the library, public and private organizations. It was largely a desk review of published literature on quality and SME growth. Identification letters introducing the researcher were obtained from the university to ease the data collection process.

Data Analysis

The data from the questionnaires, observation schedule, and the interview schedule was coded and the response on each item put into specific main themes. The data obtained from the three research instruments was analyzed by use of descriptive statistics (frequencies and percentages) and inferential statistics. Descriptive statistics in the form of frequencies, means and standard deviations were utilized to analyze data obtained from the SME observation schedule (pre-test and post-test results). Analysis of variance (ANOVA) was used to analyze the degree of relationship between the variables in the study (for example the relationship between entrepreneurial management and adoption of quality). This indicated the strength and direction of the association between the variables. The multiple regression analyses determined whether the group of factors proposed together predicted the adoption of quality which would also influence growth. The analysis was done using the SPSS computer program to generate the t- value.

Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was undertaken. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy is an index used to examine the appropriateness of factor analysis. High values (between 0.5 and 1.0) indicate factor analysis

is appropriate. Values below 0.5 imply that factor analysis may not be appropriate (Magd, 2008).

Results of Research

The sample for the study consisted of 123 manufacturing SMEs in the various sub-sectors namely manufacturing, agro-based SMEs, chemical and mining and engineering and construction industries. A total of 123 organizations were surveyed to ascertain contributions made by quality initiatives towards realization of growth and responded. This resulted into 100% response rate. The reliability of each construct was examined to ensure the items collectively measured their intended construct consistently as recommended in the extant literature (Saunders, Lewis & Thornhill, 2003). Internal consistency reliability was examined in the way of Cronbach's alpha (Nunnally, 1978). Generally, 0.70 or higher value is considered to be an acceptable value for Cronbach's alpha reliability (Sekaran, 2003).

From the research data, Cronbach's alpha values were well above 0.70, so the results were acceptable. Convergent validity exists if a group of indicators is measuring one common factor. Convergent validity can be assessed at the individual and construct level by examining individual item loadings (squared multiple correlations). Individual item loadings, which represent squared multiple correlations, of 0.70 or greater imply that the indicator shares more variance with its construct than error variance (Kumar, 2000).

Profile of Responding Small and Medium Enterprises and Respondents

Majority 66 (53.7%) were liability limited companies, followed by partnerships and cooperatives which both had each 24 (19.5% each). These results indicate that the SMEs in Kenya are formal. The types of businesses studied included: chemical and mining (30), agro-based (58), and engineering and construction (35). Small and medium enterprises studied indicated that 45 (36.6%) had a growth culture, while majority 56 (45.5%) indicated that they had an efficiency-centered, while others adopted different cultures. Similarly, the type of entrepreneurial orientation pursued by the firms studied varied. A majority, 42 (34.1%) was said to be proactive, followed by 37 (30.1%) were said to be risk takers. The rest pursued a combination of one or both of the entrepreneurial cultures.

Majority 88 (71.5%) of the responding firms had implemented a formal quality program and based on results. SMEs were classified as either quality initiative deploying or non-quality initiative deploying. The results indicated reluctance of SMEs to adopt quality initiatives. The length of time using the quality initiatives significantly enhances the relationship between quality and growth. The results support what is held by quality initiatives for example TQM, researchers that quality needs to be implemented with long-

term vision, and not considered as a 'quick fix tool'. -whilst these findings of sticking to quality initiatives ultimately provides growth benefits. Time may represent a range of variables such as training and the overall integration of quality principles into daily management processes and systems that will determine the impact of quality initiatives of the firm.

Most (47%) of the quality initiatives were adopted between 2-5 years ago, with few (31%) firms having adopted 1 year ago and the trend seems to be gradually declining. The results indicate a pattern of adoption of quality initiatives. However, it cannot be argued that the declining interest in quality programs indicates that most SMEs in Kenya have adopted quality. This is because nearly, 30% (35 out of 123) of the firms in the sample did not adopt any formal quality initiative, which may truly reflect the population of the SMEs in Kenya.

The more plausible inference of the declining trend of adopting quality programs is that they have lost popularity among the Kenyan firms for a variety of reasons. One possible reason is some quality initiative implementations are voluntary, while others are a making of the market forces. For example the certification to ISO 9001, is largely driven by the demands of the customers (Magd, 2008). Another plausible inference is that many firms prefer to implement quality initiatives without necessarily devising them into a formal program or those who had initiated quality programs may have abandoned such formality and continued with certain quality principles (Van der Wiele & Brown, 1998).

Entrepreneurial Management and Adoption of Quality Programs

From the research data, few 11 (8.9%) manufacturing SMEs had a combination of all the three entrepreneurial management constructs (risk, proactive, and innovativeness). In line with Miller (1983), Lumpkin and Dess introduced in 1996 a concept of 'entrepreneurial orientation' of a firm. The responsibility for adoption of quality lies with the entrepreneurs as the policy makers.

On the type of quality programs implemented by SMEs studied. The majority (25%) of the SMEs studied, adopted the BPR quality initiative, followed by Lean production (22.7%), and 18% are working towards ISO 9001 Certification. The least of the quality initiative programs implemented are; Excellence self-assessment (5%) and Benchmarking (5.7%). The maximum number of hours spent is 56 hours in a week on quality matters, and a minimum of 2. The mode is 6 hours. The number of suggestions made by employees towards improvement was found to be 50 per annum, and a mode of 2. The number of suggestions made reflect low level of participation of employees and empowerment in quality initiatives.

Empowerment of employees is important to successful implementation of quality programs. The empowerment is also done through training.

The average numbers of hours each of the SME studied spend on quality. The study found that majority (56%) of the firms studied spent at least 48 hours per year in training employees in quality programs. The mode of 20 hours training of employees per year is suggestive of low level of empowerment of employees in quality. It indicates that SMEs put less attention to empowering of employees in quality programs. The plausible explanation is that SMEs studied have largely adopted quality initiative programs due to the need for a performance improvement philosophy that aims to achieve quantum improvements by primarily rethinking and redesigning the way that business processes are carried out. This is a dramatic turn round rather than a gradual process that focuses on the structure, systems and process of how things are done in the organization. Secondly, the other explanation for adopting Lean production is to reduce waste in the value chain .Finally, market pressure would explain the adoption of IS0 9001. The study concludes that SMEs in Kenya have adopted to quality mainly for the need for change, to reduce waste and as a result of market pressure.

This study further confirms the findings of previous researchers that SMEs adopt quality initiatives not from internal initiatives but mainly from external market pressures. Furthermore, SMEs often implement quality practices in response to external pressures rather than as the result of internally generated initiatives to improve quality or reduce costs (Sun & Cheng 2002). Shea and Gobeli (1995) looked at whether quality initiatives like TQM was a worthwhile investment and, based on interviews with ten SME owners, concluded that quality initiatives could be used to improve small business growth. The observation results also indicated that 50% of the SMEs had a product label indicating ingredients and few (46%) SMEs had a customer service line. Surprisingly few (38%) of the entrepreneurs are ever present in their firms during working days. The observation results may suggest that while SMEs studied may be implementing quality programs, much of that implementation remains paper work and executive commitment to quality programs with very little pragmatic results. Frequent training of employees on quality issues and the suggestion box would serve as a conduit for empowering employees to improve on the quality of a firm’s products and processes. Additionally, an entrepreneur who is present most of the time within the business premises serves as an impetus for quality adoption.

Discussion

To test a hypothesis means to tell (on the basis of the data the researcher collected) whether or not the hypothesis seems to be valid (Kothari, 2004). The purpose of hypothesis testing is to determine the accuracy of the study hypotheses due to the fact that the researcher has collected a sample of data, not a census (Cooper & Schindler, 2003). In hypothesis testing the main question is: whether to accept the null hypothesis or not to accept the null hypothesis (Kothari, 2004).

Hypothesis 1: *There is no relationship between Entrepreneurial Management and adoption of quality in small and medium enterprise*

To test this hypothesis, which had the null hypothesis that there is no linear relationship between the two variables a linear regression F-test was carried out. Using the Analysis of Variance (ANOVA) to determine whether there is a regression relationship, between entrepreneurial management (EM) and adoption of quality in SMEs. Table 1 indicates the linear regression F-test results and with F= 5.037, and 121 degrees of freedom, and the critical values for the F - test (1, 120, at 0.05 alpha is 1.2255) is less than the computed F-value, then we reject the null hypothesis and conclude that there is a linear relationship between the variable entrepreneurial management and adoption of quality in SMEs.

Table 1. F-statistic Linear Regression Model

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	1.005	1	1.005	5.037	.027[a]
	Residual	23.954	120	.200		
	Total	24.959	121			

Source: Research Data

To test the significance of regression relationship between EM and adoption of quality in SMEs, the regression coefficients, the intercept, and the significance of all coefficients in the model were subjected to the t-test. The t-test, tests the null hypothesis that the coefficients are zero. Since it is based on a sample, the t-test is carried out to see if the regression relationship established was statistically significant (test whether the relationship established in the study, actually exists in the population or if it is the result due to sampling error) (Montogomery, Peck & Vining, 2001).

The null hypothesis state that, β (beta) = 0, and therefore, there is no relationship between EM and adoption of quality in SMEs. It was desired to test the null hypothesis that the slope β is equal to some specified value β0 (often taken to be 0, in which case the hypothesis is that x and y are unrelated. The t-test was done at n-2, degrees of freedom.

The formulae for t-test is $$t_{\text{score}} = \frac{\widehat{\beta} - \beta_0}{SE_{\widehat{\beta}}}$$ *equation……1*

To test this hypothesis, the beta coefficient was computed and t-test used for the relationship between entrepreneurial management and adoption of quality. It was tested at 5% significance level. The results are tabulated in Table 2. The results indicate that the t-test found that the beta coefficient was found statistically significant, because (t value, at 0.05 = 1.244, is less than critical t, = 1.645 at 005, df, 120). The null hypothesis was rejected and therefore the t-test indicated that beta co-efficient was different from zero, at 5% significance level. The findings are in support of other research studies that indicate that entrepreneurial management has a positive influence on the adoption of quality initiatives in SMEs. As many firms have discovered that the key to customer satisfaction and competitive success lies in emphasizing and achieving product and service quality as a strategic weapon in performing business (Pulat, 1994; Krasachol & Guh, 2001; Reed, Lemak, & Mero, 1999).

Table 2. Relationship between Entrepreneurial Management and Adoption of Quality

	Un-standardized Coefficients		Standardized Coefficients	
Model	B	Std. Error	Beta	t
(Constant)	1.275	.041		31.097
Entrepreneurial management	.098	.064	.201	1.531

Beta is significant at 5% level (two tailed)

Source: Research Data

In addition, to measure the effect size of the constructs of entrepreneurial management on the adoption of quality ANOVA was done to determine the eta-squared. The eta-squared as used within the context of ANOVA describes the degree of relationship between a predictor or set of predictors and the dependent variable (Block & Aguinis, 2004). The statistical analysis used in this study was eta-squared. The Eta-squared (η2) describes the ratio of variance explained in the dependent variable by a predictor while controlling for other predictors (Cohen, 1992).The interpretation of the eta squared is based on the rule of the thumb benchmarks as either small, (0.01), medium (0.06) or large (0.14) (Kittler, Menard & Phillips, 2007).

Table 3 tabulates the results of the effect size of the constructs on the adoption of quality as indicated by the ANOVA results. It is clear that that entrepreneurial orientation construct had the largest effect size (Eta squared = 0.211) and the time spent on quality improvement programs (eta squared = 0.144) are major factors of management that influence adoption of quality.

However, the style of management (eta squared = 0.028), type of corporate strategy pursued (eta squared = 0.027), whether the firm sought advice on quality programs , (Eta squared =0. 00193) and the type of organization the firm sought advice on quality implementation (0.051) are within the range 0.01 and 0.06 benchmarks (Kittler, Menard & Phillips, 2007), so they all have medium effect size on the quality adoption in SMEs.

The results confirm other studies that indicate that a firm that has developed an entrepreneurial orientation will incorporate strategic planning as a visionary tool. Strategic planning functions as a vehicle to integrate quality requirements with the business activities of an organization so that total quality is reflected in its corporate vision, mission and strategy statements (Crosby, 1986; Deming, 1986; Juran, 1992). Close control by the entrepreneurs in these firms supports easy translation of entrepreneurial vision and action.

Table 3. Entrepreneurial Management Constructs Influencing Adoption of Quality

Entrepreneurial Management	Eta	Eta squared
The entrepreneurial orientation	0.459	0.2107
Type of corporate level strategy	0.166	0.0275
Style of management	0.169	0.0285
Time spent on quality improvement programs	0.379	0.1436
Whether a firm seeks advice on quality programs	0.044	0.0019
Type of organization the firms seeks advice on quality programs	0.226	0.0510

Source: Research Data

Hypothesis 2: *There is no relationship between Marketing Orientation and Adoption Adoption of Quality in Small and Medium Enterprises*

To test hypothesis, linear regression F-test which had the null hypothesis that there is no linear relationship between the two variables was carried out. Using the ANOVA to determine whether there is a regression relationship, between market orientation (MO) and adoption of quality in SMEs. Table 4 indicates the linear regression F-test results and with F= 1.56, and 121 degrees of freedom, and the critical values for the F - test (1, 120, at 0.05 alpha is 1.2255) is less than the computed F-value , then we reject the null hypothesis and conclude that there is a linear relationship between the market orientation and adoption of quality in SMEs.

Table 4 F-statistic for Linear Regression Model

Model	Sum of Squares	df	Mean Square	F
Regression	.032	1	.032	1.56
Residual	24.927	120	.208	
Total	24.959	122		

Source: Research Data

To test the significance of regression relationship found, between MO and adoption of quality in SMEs, the regression coefficients, the intercept, and the significance of all

coefficients in the model were subjected to the t-test. The t-test, tests the null hypothesis that the coefficients are zero. It was desired to test the null hypothesis that the slope β is equal to some specified value β0 (often taken to be 0, in which case the hypothesis is that x and y are unrelated. The t-test was done at n-2, degrees of freedom at 5% significance level.

The results are tabulated in Table 5. The null hypothesis was rejected , and the study concluded that the beta coefficient for market orientation was not equal to zero and therefore the relationship found between MO and adoption of quality was statistically significant at the 5% level (t value , at 0.05 = 1.609, is less than critical t, = 1.645 at 005, df, 120).

The results of the hypothesis indicate that there is a relationship between MO and adoption of quality initiatives in SMEs studied. This supports the definition of market orientation as advanced by Mandal (2000), who postulated that definition of market orientation shares some common dimensions of quality initiatives philosophies. However, there is a paucity of empirical research examining the relationship between market orientation and adoption of quality.

The findings of this research further confirm what other researchers have established. Though most empirical evidence appears somewhat sketchy (Raju & Lonial, 2002), it has been established that both market orientation and quality implementation require close coordination among other departments in the organization. Value creation for customers also calls for close coordination between marketing and quality departments (Slater & Narver, 1995).

Table 5. Relationship Between Market Orientation and Adoption of Quality

Model	Un-standardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	Df	t-value
(Constant)	1.286	.041		121	31.164
market orientation	.066	.041	536	121	1.609

Source: Research Data

In addition, to measure the effect size of the constructs of market orientation on the adoption of quality, ANOVA analysis was done to determine the eta-squared. The eta-squared as used within the context of ANOVA to describe the degree of relationship between a predictor or set of predictors and the dependent variable (Block & Aguinis, 2004). The statistical analysis used in this study was eta-squared. The Eta-squared (η2) describes the ratio of variance explained in the dependent variable by a predictor while controlling for other predictors (Cohen, 1992).The interpretation of the eta squared is based on the rule of the thumb benchmarks as either small, (0.01), medium (0.06) or large (0.14) (Kittler, Menard & Phillips, 2007).

Table 6 tabulates the results of the effect size of the constructs on the adoption of quality as indicated by the ANOVA results. It is clear that a firm that has quality strategies reflect the realities of the market had the largest effect on adoption of quality (Eta squared = 0.16484) , followed by a firm that has a strong market function to new product development with moderate effects (eta squared = 0.12461) . The rest of the marketing attributes had low effect size (below 0.01) (Kittler, Menard & Phillips, 2007).

Studies indicate that there is a positive and direct strong relationship between market orientation and quality implementation in SMEs has been supported by findings and confirmed by empirical studies. Given the information oriented nature of quality practices and market oriented firm, quality implementation may offer a rich array of tools that organizations could be transformed in achieving marketing orientation. Day (1994) in his study confirms this relationship between market orientation and adoption of quality initiative like TQM, but warns that the weakness in adoption of quality to achieve a market orientation is that the effectiveness of quality practices is internally contained and a repetitive process which may not go beyond the bounds of the organization.

Table 6. Market Orientation Constructs Influencing Adoption of Quality

Marketing Orientation Aspect	Eta	eta –squared
Organization understands needs of target customers	0.066	0.00436
Organization has a quality philosophy	0.009	0.00081
Quality strategies reflect the realities of the market	0.406	0.16484
Orientation to market responsiveness	0.007	0.00049
Firm has a well-designed information system	0.025	0.000625
Firm has a strong market function to new product development	0.353	0.12461
Firm has realistic quality adoption costs reflected in marketing costs	0.082	0.00672
Organization has system for collecting, analyzing and evaluating new product	0.028	0.000784
Firm undertakes sufficient market research on new product ideas	0.247	0.061
Firm's new product development are sufficient for market objectives	0.025	0.000625

Source: Research Data

Hypothesis 3: *There is no relationship between adoption of quality and capacity of employees in small and medium enterprises*

To test hypothesis, linear regression F-test which had the null hypothesis that there is no linear relationship between the two variables was carried out. Analysis of variance (ANOVA) was used to determine whether there is a regression relationship, between adoption of quality and capacity of employees in SMEs.

Table 7 indicates the linear regression F-test results and with F= 3.75, and 121 degrees of freedom, and the critical values for the F - test (1, 121, at 0.05 alpha is 1.2255) is less than the computed F-value , then we reject the null hypothesis and conclude that there is a linear relationship between the adoption of quality and capacity of employees in SMEs.

These findings confirm other studies that show that employee involvement in implementing quality initiatives is critical for its successful implementation.

Studies show that employees' involvement in quality initiatives like ISO 9000:2000 has increased (Cruickshank, 2000). The study further supports the arguments that in order to be fully successful and self sustaining, QI requires an extensive refashioning of 'softer' practices (Schonberger, 1994; Dale et al, 1994) whose elements consist of essentially dimensions of human resources management (Wilkinson et al, 1998; Dale et al, 1994).

Table 7. F-statistic for Linear Regression Model

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	.756	1	.756	3.750	.055[a]
	Residual	24.203	120	.202		
	Total	24.959	121			

Source: Research Data

To test the significance of regression relationship found, between adoption of quality and capacity of employees in SMEs, the regression coefficients, was subjected to the t-test .It was desired to test the null hypothesis that the slope β was equal to zero and the t-test was done at n-2, degrees of freedom at 5% significance level. The results are tabulated in table 8. The null hypothesis was rejected, and the study concluded that the beta coefficient for capacity of an employee was not equal to zero and therefore the relationship found between the capacity of employees and adoption of quality was statistically significant at the 5% level (t value, at 0.05 = 1.439, is less than critical t, = 1.645 at 005, df, 120). The results of the hypothesis indicate that there is a relationship between adoption of quality initiatives and capacity of employees in SMEs studied.

The research findings further support the proponents of soft aspects of adoption of quality as essential to its success (Juran, 1992; Cruishhank, 2000). Research in basic quality initiative implementation argues that for successful quality implementation, softer aspects such as; teamwork, extensive training, high level of communication, employee involvement, empowerment and organizational culture must be observed. Employee empowerment is effective in SMEs where most frequently the customer's perception of quality stands or falls based on the action of the employee in one-on-one relationship with customer (Temtime & Solomon, 2002). Focusing on delivering customer value in implementing quality initiatives like ISO or BPR, encourage entrepreneurs to make the best use of employees and resources in order to create products that customer values (Chapman & Al-Khawaldeh, 2002).

Table 8. Relationship Between Capacity of Employees and Adoption of Quality

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
	(Constant)	1.278 .041		31.170	.000
	Capacity of employees	.059 .041	.174	1.439	.050

Source: Research Data

In addition, to establish the effect size of various employee attributes is influenced by adoption of quality, eta squared was determined. The results are tabulated in Table 9. It is clear that spending more hours training employees on quality had the greatest effect as a result of adoption of quality adoption (Eta squared = 0.2209), The rest of the aspects of employee attributes had moderate effects resulting from quality adoption in SMEs, (0.01 < eta squared < 0.06). That is, training of staff through workshops (eta squared = 0.01144), training of staff on the importance of quality on the firm's growth (eta squared = 0.04), organizations training staff on quality (eta squared = 0.0552), and finally, employees being motivated to participate in quality programs (eta squared = 0. 0380). The interpretation of the eta squared is based on the rule of the thumb benchmarks as either small, (0.01), medium (0.06) or large (0.14) (Kittler, Menard & Phillips, 2007).

Table 9. Capacity of Employees Constructs Influencing Adoption of Quality

Capacity of employee attribute	Eta	Eta squared
Organization trains staff on quality	0.2 35	0.0552
Training of staff in SME'S through workshops and seminars	0.107	0.0114
Training of staff on the importance of quality for firms' growth	0.200	0.04
Employees are motivated to participate in quality programs	0.195	0.0380
Hours spent in employee quality training	0.470	0.2209

Source: Research Data

Hypothesis 4: *There is no relationship between investment in technology and adoption of quality in small and medium enterprises*

To test hypothesis, linear regression F-test which had the null hypothesis that there is no linear relationship between investment in technology and adoption of quality in SMEs was carried out. Analysis of Variance (ANOVA) was used to determine whether there is a regression relationship, between investment in technology and adoption of quality in SMEs.

Table 10 indicates the linear regression F-test results and with F= 0.68, and 121 degrees of freedom, and the critical values for the F - test (1, 121, at 0.05 alpha is 1.2255) is more than the computed F-value, then we accept the null hypothesis and conclude that there is no linear relationship between the investment in technology and adoption of quality in SMEs. The rejection of this hypothesis is a reverse of past studies by Philips and Ledgerwood (1994); Zairi, (1993); Scott-Morton, (1991); Ariss, Raghunathan and Kunnathar (2000) who

had stated small firms could adopt technologies to gain significant advantages over their competitors.

Studies have shown that Kenya's small and medium enterprise manufacturers are applying relatively old technology compared to its neighbors. SMEs in Kenya are finding it difficult to access the local and export market due to poor production techniques (GoK, 2007). The manufacturing SMEs also suffers from poor power quality supply thus limiting them from investing in new technology for competitive excellence.

Table 10. F-statistic for Linear Regression Model

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	.014	1	.014	.068	.794[a]
	Residual	24.945	120	.208		
	Total	24.959	121			

Source: Research Data

To test the significance of the results found, the t-test was carried out on beta coefficients assumed to be zero. It was desired to test the null hypothesis that the slope β is equal to some specified value β0 (often taken to be 0, in which case the hypothesis is that x and y are unrelated. The t-test was done at n-2, degrees of freedom at 5% significance level. Table 11 indicates the results for t-value. The t-test for significance, indicate that the beta was not different from zero and therefore there is relationship between investment in technology and adoption of quality. The null hypothesis were accepted because the computed t-value (1.9677) is outside the acceptable zone compared with the critical t –value (t, = 1.645 at 005, d.f, 121) at the 5% significance level and therefore indicating no relationship at all. Smaller firms may lack sufficient financial and human resources required for the implementation of some technological processes, resulting in lower levels of adoption of more costly technologies (Cagliano & Spina, 2002).

The study results may be explained by the fact that even though technologies can improve quality throughout the entire manufacturing process, to maintain consistent quality, small firms need to upgrade their manufacturing technology (Ariss, Raghunathan & Kunnathar, 2000). In addition, manufacturing SMEs may not quickly adopt new technology despite consulting a quality inspection firm, because of largely having "traditional" owners or managers (Schroeder, Gopinath & Congden, 1989), who exhibit a fear of technology, which may cause them to create a barrier to the adoption of advanced manufacturing technology.

Table 11. Relationship Between Investment in Technology and Adoption of Quality

Model	Un-standardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	1.287	.041		31.169	.000
Investment in technology	.061	.031	.524	1.9677	.794

Source: Research Data

In addition, to establish the effect size of investment in technology attributes influences by adoption of quality, eta squared was determined. The results are tabulated in Table 12 below. It is clear that involvement of quality experts like the Kenya Bureau of Standards in quality implementation , in new product and new processes has a moderate effect on adoption of quality in SMEs (eta squared = 0.065) . The rest of the technology constructs were found to have low effects on adoption of quality (eta squared < 0.06) (Kittler, Menard & Phillips, 2007).

Table 12. Investment in Technology Constructs Influencing Adoption of Quality

Investment in Technology Attribute	Eta	Eta squared
Technology has influenced quality	0.132	0.0174
Firm has sought advice on new technology	0.044	0.00193
Type organization where advice is sought	0.226	0051
Investment in technology in the last three years	0.033	0.00108
Firm has a structured method of adopting new technology	0.044	0.00193
Firm involves KBS in new products and processes	0.255	0.065

Source: Research Data

Hypothesis 5: *There is no relationship between adoption of quality and growth in small and medium enterprises*

To establish the strength and the direction of the relationship between adoption of quality programs and growth in firms studied, rankings were made of the various aspects of growth based on whether a firm had adopted any quality initiatives as indicated in table 13. The study then utilized the Spearman's rho coefficient to indicate the strength and direction of the relationship between adoption of quality and growth in SMEs. Spearman's Rho coefficient (p) is used with categorical data where both variables are rank- ordered (ordinal) (Mugenda, 2008). Rho correlates ranks between two ordered variables (Cooper & Schindler, 2003) as indicated in Table 14.

Data and preliminary calculations obtained from table 4.25 are substituted into Spearman's rho formula below;-

$$r_S = 1 - \frac{6\sum d^2}{n(n^2-1)} \quad \text{.....equation 2}$$

Where:

rS is the rank correlation coefficient

n is the number of subjects being ranked

$r_S = 1 - \frac{6(74.5)}{9(9^2-1)} = 0.379$

The study established that there exists a moderate positive correlation (r = + 0 .379) between the quality programs and growth of firms studied. Therefore, the null hypothesis was rejected and study confirmed that there is a relationship between growth and adoption of quality initiatives in SMEs.

In addition, to estimate the explained variation, a coefficient of determination (r^2) explains the extent to which implementing quality initiatives in SMEs influence growth in which is, in this case ($r^2 = .144$) was computed . The explanations are that variations in various aspects of a firm's growth can be explained by the implementation of quality programs by 14.4 %, while random or other factors explain other variations in growth aspects accounting for 85.6%. Research shows that most SMEs loose between 5%-15% of sales revenue as a result of the lack of attention to quality (McMahon, 2001).This suggests that formal quality management systems are important tools contributing to the growth and development of SMEs.

To test the significance of the relationship between growth and adoption of quality programs in SMEs, t-test was carried out, at the 5% level. The test of the null hypothesis that r is no different from zero and that the relationship between adoption of quality is due to chance (rs = 0). The formula used for the determination of t –test was:

$t = r_s \sqrt{\frac{n-2}{1-r^2_s}}$ ……equation 3

$= 0.379 \sqrt{\frac{7}{1-0.144}} = 1.084$

= 1.08 (2 decimal places)

The computed t = 1.08 was compared with the critical t-test, at 0.05 alpha, d.f = n-2 = 1.645). The null hypothesis was rejected which supposed not relationship, because the computed t-value (1.08) is within the acceptance zone compared with the critical t –value (t, = 1.645 at d.f, 121) at the 5% significance level and therefore indicating a relationship between adoption of quality and growth is statistically significant (it exists in the population and therefore did not happen by chance) .

The results findings support the hypothesis that indicate that there is a positive relationship between adoption of quality and growth in the firms studied. The findings

empirically support the notion that SMEs with a higher quality commitment for example ISO 9000, do obtain increased results. These results confirm studies done by previous researchers in this area such as (Douglas & Judge, 2001). Kaynak (2003) also reports a similar correlation between quality initiative's implementation and the perceptual measures of growth. Also Samson and Terziovski (1999) and Dow, Samson and Ford (1999) conducted research in Australia and New Zealand and found a significant relationship between quality management practices and organizational growth performance.

In the case of SMEs the evidence, however, appears to be equivocal. Some quality advocates argue that, due to resource problems (mainly financial and human resources) quality cannot produce consistent growth for SMEs (Schmidt & Finnigan, 1992; Powell, 1995; Strubering & Klaus, 1997). Another group of researchers, however, found some significant performance results of quality practices in SMEs (Ahire & Golhar, 1996; Hendricks & Singhal, 2001).

In comparing larger firms with smaller firms, Hendricks and Singhal (2001) argue that smaller firms tend to benefit more from quality practices as compared to larger firms. This argument contradicts with some of the earlier arguments on the role of quality in SMEs (that quality initiatives are less beneficial to smaller firms).

Table 13 Ranking of Levels of Growth Based on Whether a Firm is Implementing Quality

GROWTH /DECLINE SINCE 2003	QI- Geometric Mean		NON-QI Geometric Mean		Rank Differences	Squared Differences
	Mean	Rank (a)	Mean	Rank (b)	(a-b)	$(a-b)^2$
Turnover	2.5	5	2.45	7	-2	4
Assets Growth	3.8	4	3.10	5	-1	1
Size of Permanent Labor Force	3.90	3	4.10	2	1	1
Product Diversification	6.3	1	2.5	6	-5	25
Production Throughput	2.46	6	3.15	4	2	4
Market Size	4.50	2	4.57	1	1	1
Change in Skills Ratio of Employees	2.0	7.5	1.15	8	-0.5	0.25
Customer Satisfaction Index	1.80	9	3.3	3	6	36
Zero Defects Level	2.0	7.5	1.1	9	-1.5	2.25
$\sum d^2$						74.5

Source: Research Data

Hypothesis 6: *The entrepreneurial management, market orientation, capacity of employees and investment in technology together do not influence the adoption of quality*

To test this hypothesis, multiple linear regressions of variables were carried out. Table 14 is a summary of model and indicate the Adjusted R squared used as test for model fitness. The F -test was carried out to test the significance of the regression model in predicting the dependent variable (adoption of quality).

From the results, it is clear that the four independent variables moderately predict the adoption of quality in SMEs (adjusted R squared = 0.245). That means the model explains 24.5 % the variance in adoption of quality in SMEs. To test the significance of regression model (adjusted R) the null hypothesis stated that, R = 0, that is, it was not different from zero and the relationship found may have been due to chance. R varies from 0-1, and the closer it is to 1.0, the better the relationship between Xs and Y, in this case predictor variable and response variables.

Table 14 Multiple Correlation Coefficient Between Variables

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
	.519[a]	.269	.245	.86912249

a. Predictors: (Constant), investment in technology, capacity of employees, market orientation, Entrepreneurial management

Source: Research Data

Table 15 below indicates the F-test results for the regression model. The null hypothesis was rejected because the linear regression F-test results, (F= 10.128, and 118 d.f) compared to the critical values of F-test (4, 118 , at 0.05 alpha is 1.2455), indicates that the critical F value is less than the computed F-value. Therefore the null hypothesis was rejected and concluded that, the regression model linearly explains the adoption of quality in SMEs.

Table 15 F-test for Multiple Regression Model

Model	Sum of Squares	d.f	Mean Square	F	Sig.
Regression	32.866	4	8.216	10.877	.000[a]
Residual	89.134	118	.755		
Total	122.000	122			

Source: Research Data

Table 16 below indicates the coefficients of the model as generated from the regression analysis. The beta coefficients indicate the relative importance of each independent variable in influencing the dependent variable. From the proposed model, it's clear that adoption of quality in SMEs largely depends on the Entrepreneurial orientation (Beta = .520) is the most important in influencing the adoption of quality in SMEs. However, capacity of employees was found to have the weakest influence on adoption of quality in SMEs and that relationship though positive (near zero) is insignificant (beta= 0.043).

Table 16. Regression Analysis Between Independent and Dependent Factors

Model	Un-standardized Coefficients		t
	B	Std. Error	
(Constant)	.001	.078	.0128
Capacity of Employees	.043	.079	.544
Entrepreneurial Management	.520	.079	6.582
Market Orientation	.113	.079	1.430
Investment in Technology	.049	.082	.597

Source: Research Data

The beta coefficient is the predictive power of the assumed model variable relationships. Remodeling the proposed framework will look like the following:

$Y= 0.001 + .520\ X_1 + 0.043\ X_2 + .049\ X_3 + 0.113\ X_4 + \acute{\varepsilon}$

Where:

Y = Adoption of quality

0.01 = Constant

X_1 = Entrepreneurial Management

X_2 = Capacity of employees

X_3 =Investment in technology

X_4 = Market Orientation

$\acute{\varepsilon}$ = Random factors

Conclusion

While there is no single type of strategy, which was associated with growth, the best performing SMEs in the study were those, which were the most active along a number of dimensions while being particularly active in managing their products and markets. In this respect, the study confirms with other research findings that the success of quality adoption appeared to rely more on executive commitment, open organization and employee empowerment rather than on benchmarks and process improvement.

This study confirms the direct relationship between quality practices and organizational growth. Chen (1999) while studying Taiwan manufacturing SMEs observed that SME operators ranked product quality the first competitive priority. Almost all-Taiwanese manufacturing SMEs attributes their firm's growth or success to product quality (Chen, 1999). The findings can help practitioners focus more on specific practices rather than focusing on all practices. For example, many SMEs feel forced to adopt ISO9000 standards but then do not move to adopt other quality management systems (Van der Wiele & Brown

1998). This will help practitioners to devote both time and resources appropriately to improve business processes in need of urgent re-modifications.

This study also confirmed that the rate of quality adoption amongst manufacturing SMEs in Kenya is low. This confirms Husband and Mandal (1999) study of manufacturing Australian SMEs, that SMEs have been very slow to implement formal quality models, and where they have, the outcomes are inconclusive. This might be as a result Kenya's manufacturing SMEs putting a below average emphasis on the need to develop quality sensitive organizational culture and philosophy. This is also confirmed by the fact the SMEs rarely consult professional firms when implementing formal quality initiatives despite dedicating some hours training their staff on quality matters. Despite having a large number (88) of manufacturing SMEs adopts some quality practices, many simply jump on the bandwagon without fully understanding what quality means to them or its possible consequences.

The findings of this study differ from past research on the extent of adoption of quality-related practices by manufacturing SMEs. A high percentage (72%) of the manufacturing SMEs in Kenya had introduced a business improvement program- that is, BPR or ISO. This compares with relatively lower percentages reported by other studies - 17.5% of manufacturing SMEs (Lobo & Jones, 2002). One possible explanation for this divergence in results may be higher incidence of the use of "informal" quality practices that were identified the research period.

Matching and alignment between mission and organizational focus and context is an important key concern in manufacturing and operations strategy theory (Hill 1995; Platts & Gregory 1990; Slack & Lewis 2002; Voss 1995, 2005). Also this study confirms the manufacturing and operations strategy theory, that the degree of fit between the chosen quality initiative and the company's focus and context (such as competing priorities, capability, resource usage, etc.) has a significant impact on enterprise growth (Sousa & Voss 2001).

Although an association between quality initiatives and SME growth can clearly be established, the direction of this relationship and causation cannot be termed without further research. That is, is the use of quality initiatives driving the rate of SME growth, or conversely, are higher growth SMEs just more likely to adopt sophisticated management practices and techniques than lower growth SMEs? Even if the direction of the relationship could have been established by this data, causation would have been difficult to determine. This is a common limitation with exploratory studies such as this; however, further

qualitative research could shed more light on the issue. Nevertheless, the study does show a positive relationship between quality initiatives and the rate of SME growth for Kenyan manufacturing SMEs, and this is a good starting point for further, in depth research.

The existing and new quality initiatives need more empirical research into their effectiveness and impact on manufacturing SMEs, particularly in the process improvement area, in which credibility of publications is needed to support the decision about adoption. The author believes that further research is needed to provide more empirical evidence about the effectiveness of various quality initiatives specifically targeting manufacturing SMEs in developing economies.

It is also proposed that a wider range of employees' affective reactions such as task characteristics, role ambiguity, role conflict, career satisfaction, organizational commitment and job involvement can be incorporated into a more comprehensive study, as this study chooses to cover only one type of employee attitude. It will also be valuable for future studies to adopt a longitudinal approach by examining the expected benefits derived from a well-implemented a quality program over an extended period.

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